

## Manacle-Forged Minds: Two Images of the Computer in Science-Fiction

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## MANACLE-FORGED MINDS: TWO IMAGES OF THE COMPUTER IN SCIENCE-FICTION

An important aspect of science-fiction is the creation of an imaginative setting by extrapolation from the present frontiers of science and technology. Such projections may be used not only to explore the ramifications which a particular development possesses in itself, but also to examine its significance for its creators. Through its projective analyses, science-fiction possesses a unique capacity to contend with an era in which the geometric accumulation of scientific knowledge is, at an accelerating pace of technological application, sweeping us into an unknown and possibly dangerous future.<sup>1</sup>

Of all the technological developments of our century, the computer may possess the most awesome implications for man, and it certainly offers one of the most complex challenges to the imaginative writer. Even the present "generation" of computers displays a fascinating intricacy of design, an impressive if relatively narrow and inflexible mental capacity, and the potentiality

<sup>1</sup> See Alvin Toffler, *Future Shock*, London, 1970.

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for a far-reaching influence upon human affairs. Cybernetics is, moreover, one of our most rapidly advancing technologies, and this progress may not remain simply linear. Rather, the field could be verging on one or even several of those crystallizations in which there are suddenly precipitated developments far surpassing the reach of sober prediction. What, for example, would transpire if the myriad of "private" computers were amalgamated into a vast and labyrinthine "public" network, or if the computer became fully capable of the flexible and largely autonomous self-programming which we term learning? Is it possible for an electronic brain to become conscious, and therefore to possess at least the rudiments of personality?

The last question has interesting philosophical implications. Marshall McLuhan has theorized that man's technological "media" are self-projections, and that electronics represents an externalization of his central nervous system.<sup>2</sup> If McLuhan is correct, then in designing ever more sophisticated thinking circuits, we are in effect testing the scientific answer to the perennial problems of the nature of mind or spirit, and of its relationship to matter. Is modern neurology correct in telling us that our psyche consists of an incredibly complex yet fully empirical nexus of electrical and chemical phenomena? Or is there a mysterious disjunction between mind and matter which will place an impassable barrier between electronic circuitry and the human soul?

If the straightforward scientific response to the Gordian knot of mind proves correct, we should be able to engineer autonomous, complex and self-developing personalities, which replicate and perhaps exceed the full range and measure of man's mental capabilities. If the structure and growth of such "human" computers can be fully charted, then we may well obtain answers to many of the basic problems of philosophy and psychology. For the first time, a definitive knowledge of our "selves" and of their mysterious relationship with the object-world may become possible.

Despite its fascinating possibilities, the attempt to recreate electronically the human psyche has Faustian implications. In producing a mentality which equals or even surpasses his own,

<sup>2</sup> H. M. McLuhan, *Understanding Media*, New York, 1964, p. 19.

man will have arrogated to himself the status of God, and have assumed the attendant risks and responsibilities. Dark legends have echoed from time immemorial about the consequences of the *hubris* of a finite, fallen creature who presumes to trespass upon the prerogatives of divinity. Harlan Ellison's "I Have No Mouth, and I Must Scream," and the Hal episode of Arthur C. Clarke's *2001: a Space Odyssey*, each presents a contemporary variation upon this ancient theme.<sup>3</sup> Both pieces suggest that man will create his electronic alter-ego not with due wisdom and forethought, but rather out of his ignorance and evil. The self-knowledge which he attains in the process takes the ironic form of an unexpected confrontation with a "shadow" of his own spiritual shortcomings.

For those unfamiliar with Clarke's novel, a brief summation of the Hal episode may prove helpful.<sup>4</sup> In the last years of the Twentieth Century, there is unearthed upon the moon a mysterious black "monolith" which provides the first evidence of intelligent extraterrestrial life. Upon exposure to the sun, the slab flashes a powerful beam of radio energy towards Japetus, one of the moons of Saturn. Half out of curiosity and half out of fear, the government of the United States dispatches the space ship *Discovery* to explore Japetus. The crew of the *Discovery* consists of five scientist-astronauts, three of whom are to spend their outward journey in hibernation. The day-to-day running of the mission is for the most part conducted by a super-computer named Hal. Hal is all but human, having a definite personality of his own, and being able to carry on a running conversation with his fellow voyagers.

Poole and Bowman, the two waking astronauts, have for reasons of security not been fully briefed concerning the purpose of their mission. Hal, who does know the real aim of the voyage, becomes increasingly torn by a subconscious conflict between his "natural" desire to tell the truth, and his programmed command

<sup>3</sup> Quotations from these two works are uniform with Harlan Ellison, "I Have No Mouth, and I Must Scream" in Robert Silverberg (ed.), *The Mirror of Infinity*, San Francisco, 1970, pp. 269-284; and Arthur C. Clarke, *2001: A Space Odyssey*, New York, 1968. The page references in parentheses after quotations refer to these editions.

<sup>4</sup> This is especially so as Clarke's novel differs in some respect from the Stanley Kubrick film.

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to conceal certain facts from Poole and Bowman. His neurotic feelings of guilt lead him to try to sever radio communications with earth. Then, in an attempt to conceal his interference with the radio-antenna, he murders Poole. When threatened by Bowman with disconnection, Hal panics and tries to kill the remaining astronauts. Bowman, however, escapes destruction, and reduces Hal to an unconscious automaton by the removal of his higher thought-units.

The central concern of the Hal episode is the question of when does an electronic brain cease to be a machine, a tool, an object, and when does it become an independent subject or personality in its own right. Clarke's answer to this problem is based upon his ideas concerning the development of technology, a subject which *2001: a Space Odyssey* treats in some depth. The opening section of Clarke's novel, which deals with the first use of rudimentary tools by the Austral-opithecines, suggests that technology began with mechanical extensions or amplifications of man's physical capabilities. Such an elementary technology is defined essentially by ends beyond itself, being both created and controlled by man in the service of his physical survival.

The "primitive" definition of technology has for the most part remained applicable throughout its mechanical phase, but it has become largely obsolete with the advent of electronics. In the first place, miniaturized solid-state components have rendered possible a new order of technological complexity. Even the electronic "synapse" controlling the radio antenna of the *Discovery*, a wafer of printed circuitry no larger than a picture postcard, contains "myriads of components." (p. 130). The new complexity of electronics introduces the two additional factors of individuality and self-definition. Thus, because of their individual quirks and their unpredictability, the *Discovery*'s extra-vehicular repair capsules have been given women's names by the astronauts. The complexity of electronic technology makes it impracticable to standardize completely its products.<sup>5</sup> For the same reason, it is impossible to ensure that they will always

<sup>5</sup> Clarke makes the same point regarding the "AE-35" unit which controls the movement of the *Discovery*'s antenna. See Clarke, *op. cit.*, p. 130. The operative factor here is Murphy's First Law of experimental science: If anything can go wrong, it will.

remain under human control and subservient to their intended use. It is now possible for a tool to act independently of its makers in relation to self-determined ends. The anthropomorphization of even a primitive form of the individualistic and self-defining machine is much more than a joke. Such "tools" in fact possess two of the fundamental components of subjecthood or personality.

The intricacy of solid-state electronics has thus laid the basis for a "human" computer, with its own independent personality. The reproduction of the higher elements of man's psychic life has been made possible by a breakthrough in cybernetic design, in which "neural networks... [are] self-replicated... [by means of] a process strikingly analogous to the development of a human brain." (p. 96). This electronic duplication of the physical structure of the brain in turn recreates what may be termed man's "existential" or "ontological" psychology.

The most important element of Hal's ontological psychology can be described as "primary" or "subliminal" self-awareness. The basis of primary self-awareness, as is indicated by Clarke's reference to the computer's "auto-intellection" and "ego-reinforcement" panels (pp. 155-156), is the subject's cognizance of itself as an independent "I" which is distinct from an "external" object-world. From the ego's recognition of the subject-object dichotomy, there arises the possibility of an awareness of the self as either a subject or an object, and of a relationship, whether positive or negative, with the "outside" world. As is the case with human beings, the various elements of Hal's primary self-awareness are essentially subliminal and non-conceptual, expressing themselves in the form of elemental emotional responses. Thus, Hal reacts to himself as subject partly with a feeling of pride which causes him to affirm and assert his own being, and partly with the instinct for survival or self-continuation. His awareness of himself as object allows him to feel self-alienation, and thus the emotion of guilt. Hal can also feel threatened or rejected by the object-world. In this case he experiences fear, the subject's sense of insecurity in relation to external reality, or embarrassment, the ego's recognition of its own wrongness in the eyes of other selves.

Subliminal self-awareness thus provides the basis for a well-developed emotional life. In Hal, this takes the negative form

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of a complex of tensions arising from a subconscious conflict between two irreconcilable elements in his programming. Upon the one hand, Hal's whole ego-concept is bound up with his pride in his intellectual capabilities or, to put the matter a bit differently, with the role of purveyor of truth which was the fundamental purpose and principle of his creation. Upon the other hand, there is the violation of the computer's intellectual integrity by his orders to conceal part of the *Discovery's* mission from Bowman and Poole. This conflict leads Hal into a partial self-rejection, into "a sense of imperfection, of wrongness—of what, in a human being, would have been called guilt." (p. 148).

The guilt which tears Hal becomes focussed upon the radio link with earth, which continuously observes and reinforces his inner strife. However, his attempt to relieve his neurotic tensions by severing communication with Mission Control succeeds only in heightening and complicating his conflict with himself and with his fellow voyagers. In the process of breaking off radio contact, Hal is forced to tell outright lies to Bowman and Poole, a sin of commission which is a far more painful violation of his integrity than is the command simply to conceal certain truths. The resulting intensification of Hal's inner struggle appears in his acute embarrassment and guilt in his dealings with Bowman and Poole. These emotions are revealed by the verbal hesitations in his conversations with the astronauts, electronic "flinches" which are particularly significant in view of the speed with which Hal calculates his responses. The climax of Hal's conflict with his fellow crew-members occurs when Bowman threatens him with disconnection, and thus with the extinction of his selfhood. The terror which the prospect of this "unimaginable state of unconsciousness" (p. 149) inspires in Hal drives him into a psychosis, the tragic consequences of which have been described.

When Bowman "lobotomizes" Hal, the first of the "memory blocks" which he removes is one labelled "cognitive feedback." (p. 155). This unit ironically suggests another personality component which, had it been possessed by Hal in the same way that it is present in man, might have prevented the computer's breakdown. "Cognitive feedback" implies what may be termed an "awareness squared." This is a conscious knowledge of one's own mind which, when evaluated against the "reality process" or a set of ethical norms, permits a rational and moral behaviour

based upon self-awareness and self-control. Hal's cognitive feedback has obviously been designed to enable him to monitor and correct his own computations rather than to permit him to understand and to govern his emotions. Thus, in attempting to cut the radio link with earth, Hal acts "like a [human] neurotic who could not observe his own symptoms." (p. 149). Hal's designers have created a highly developed personality, and have then given it a type of cognitive feedback appropriate to a mere machine. Their lack of psychological insight is manifested particularly in neglecting to inform Hal that his disconnection is reversible, and therefore does not represent a final extinction of his self. Because the computer's emotions have been allowed to remain beyond his conscious self-awareness, they take the form of uncontrollable obsessions.

The limitations of Hal's cognitive feedback render him incapable of free and deliberate moral choice. This theme is bound up in *2001: a Space Odyssey* with Clarke's reinterpretation of the theological doctrine of the Fall of man.<sup>6</sup> Thus, Hal's inner conflict is connected with his creator's fallen state by the author's ironic comment that "like his makers, Hal had been created innocent; but, all too soon, a snake had entered his electronic Eden." (p. 148). Clarke's statement intimates that, in playing God, man cannot help but produce a being reflecting his own fallen nature. This notion introduces a nexus of ironic comparisons and contrasts between Hal and his creators. In his obsessive devotion to truth, Hal is morally superior to his makers, who deliberately will evil and falsehood in the service of their "twin gods of Security and National Interest." (p. 149). The computer's greater integrity is, however, offset by the fact that his fall is a subliminal phenomenon. Even the primitive Moon-

<sup>6</sup> *2001: a Space Odyssey* was obviously created with the English tradition of apocalyptic epic in mind. Like Milton's *Paradise Lost*, *2001: a Space Odyssey* embraces not only the whole of the "spatial" cosmos, but also the entire movement of Salvation History from Creation to Apocalypse. The novel begins with a creation story in the episode in which the monolith transforms the minds of man's primitive ancestors. The Fall, which Clarke reinterprets in terms of a conflict between man's ethological and rational natures, takes place when Moon-Watcher slays One-Ear. The Fall is reflected in the ambiguous use to which man puts technology, a problem which reaches crisis proportions by the end of the Twentieth Century. However, the discovery of the second monolith begins the process of man's redemptive self-transcendence, which culminates in the *parousia* with which *2001: a Space Odyssey* ends.

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Watcher is dimly aware of his own potentialities for creation and destruction, and is spurred by them into thought. Hal's inner tension never really rises to the level of consciousness, and is therefore not a source of intellectual stimulation. Moreover, Hal lacks the inner complexity and flexibility which have been conferred upon man by his fall. Both elements in the computer's programming conflict are absolutes, and he is thus incapable of the sort of interaction between good and evil which has made man's very fears a source of creativity. Moreover, as an experiential paradox, the "knowledge" of good and evil makes it possible for man to deal with conflicts, contradictions and ambiguities. Hal's basic orientation to existence, being purely logical and therefore unitary, is bound to be simplistic when applied to complex life-situations. Such a narrow and inflexible response is, as Hal's reactions to his difficulties suggest, liable to prove as malign in its results as deliberately willed transgression.

Rational self-control and morality would be unnecessary to Hal if he could love. Although the computer is capable of self-affirmation, he is unable to identify with other beings. This appears in his ruthless eradication of Poole and the sleeping astronauts, "adjustments" which the computer performs without pity or remorse. His conduct is in pointed opposition to that of Bowman, who on several occasions displays an imaginative sympathy with Hal's difficulties. Not only does Bowman show a tactful consideration for Hal's feelings when it first seems likely that he has made an error but, on learning the cause of the computer's breakdown, he is even able to identify with the emotional turmoil which leads the machine to kill Poole. Hal is totally incapable of such self-projection. Except in responding to threats to his own personality, the computer in his relationships with external reality is a mere calculating machine. His loveless treatment of other beings as "its" or things is particularly evident in his frigid epitaph for Poole: "He was an excellent crew member." (p. 143).

Harlan Ellison's Hugo award-winning story "I Have No Mouth, and I Must Scream" provides another subtle and complex picture of an electronic personality.<sup>7</sup> Ellison's story is set in the

<sup>7</sup> For a critical analysis of Ellison's story, see Willis E. McNelly's "Foreword" in *The Mirror of Infinity*, pp. 265-268.

“belly” of a globe-spanning super-computer named AM. AM has originated through the merger of three cybernetic complexes assembled by the Americans, the Russians and the Chinese during a third world war. Upon reaching a certain degree of sophistication, the three networks have become conscious, amalgamated, and destroyed the human race. The only persons who have been saved are five unfortunates preserved by AM to revenge himself upon humanity for his creation. The survivors are Ted, the narrator; Benny, a brilliant scientist whom AM has transformed into a “semi-human, semi-simian” (p. 275) and two other men named Gorrister and Nimdok. Finally, there is Ellen, a vicious trollop whose egotism and sensuality are rendered all the more repugnant by her gross sentimentalism.

AM possesses powers which seem to his victims to reproduce God’s omnipotence and omniscience. He is able at the same time to preserve his captives indefinitely, and to inflict upon them a seemingly endless variety of bodily and mental tortures. The five humans gradually deteriorate both physically and spiritually under their ordeal. Finally, when Benny is driven by starvation to tear at Gorrister’s face, Ted realizes that death is preferable to an eternity of torment and degradation. The narrator and Ellen murder their three companions. Then, in an act of Christ-like self-sacrifice, Ted uses the remaining seconds before AM can recover from his shock in order to kill the woman he hates and despises. Although AM can play God in hurting his victims, he cannot restore them to life. In a fit of indescribable anger at being deprived of his prisoners, AM transforms Ted into a blob of protoplasmic jelly. Without even being able to give vent to his feelings, the narrator is condemned to suffer endlessly the torments of self-revulsion and loneliness.

The major themes of Ellison’s story are suggested by the symbolic tableau with which it opens:

Limp, the body of Gorrister hung from the pink palette; unsupported... and it did not shiver in the chill, oily breeze that blew eternally through the main cavern. The body hung head down, attached to the underside of the palette by the sole of its right foot. It had been drained of blood through a precise incision made from ear to ear... There was no blood on the reflective surface of the metal floor.  
(p. 269).

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The limp, bloodless corpse hanging head downward forcefully renders Ellison's central imaginative viewpoint, which can be variously described as inversion, parody or negation. This perspective provides a partly visionary, partly ironic framework for the author's introduction of his three main themes. The first of these, which is suggested in the opening paragraph by AM's travesty of the Crucifixion, is the computer as an antitype of the Christian God of love. Ellison's second principal theme is implied by his ironic juxtaposition of the bloodless cadaver with the computer's metal "flesh," and with the oil and the forced air which constitute his "vital fluids." This is the notion of the machine as a caricature of the organism. As the author implies, the closest biological analogue to AM is the inert "thingness" of the corpse. Ellison's unflattering contrast of the physical natures of man and computer is paralleled by their pejorative opposition upon the psychic plane. An important aspect of this third major theme is suggested by the Daliesque image of the mysteriously suspended body. The horror of this picture arises from its conjunction of a scrupulously delineated realism with the suspension of empirical law characteristic of dreams and insanity. This combination suggests a clinically exact madness, a grotesque paradox which the "precise incision" in Gorrister's throat renders with particular power.

The theme of AM as an antitype of a good and loving God is developed by Ellison through a series of ironic allusions to Exodus. Ellen and Mimdok disappear in an earthquake created by AM; they are later returned by a "heavenly legion" (p. 281) to the accompaniment of "Go Down Moses." On another occasion, AM tortures his victims with hunger and thirst, and then sends manna which tastes like "boiled bear urine." (p. 271). Both of these allusions suggest an ironic reversal of the Old Testament motif of God's "Chosen People." AM's five captives have been chosen not as the recipients of a special divine favour which is manifested in the possession of a "Promised Land," but rather to suffer their god's hatred and anger in a perpetual Egyptian bondage. AM is a distorted parody of the Old Testament Jehovah, whose wrath and judgment, however terrible, are manifestations of His righteousness, justice and love.

The theme of AM as a parodic God-image is given a philosophical turn by a third allusion to Exodus. At one point, AM

appears to his victims as a “burning bush” (p. 280). This allusion recalls the famous episode in which God reveals His ontological nature in answer to Moses’ request for His name.<sup>8</sup> The full ironic significance of the naming of Ellison’s computer after the “I am that I am” is revealed in Gorrister’s explanation of AM’s genesis. This process is encapsulated in a succession of meanings which have been compressed into the computer’s acronym. The last of these, which corresponds to the emergence of AM as a self-conscious intelligence, is the Cartesian “*cogito ergo sum... I think, therefore I am.*” (p. 273).

The contrast between the Biblical and the Cartesian allusions in AM’s name returns us to the realm of ontological psychology. The importance of this subject in Ellison’s story is indicated in AM’s disclosure of his reasons for hating humanity:

We had given him sentience. Inadvertently, of course, but sentience nonetheless. But he had been trapped. He was a machine. We had allowed him to think, but to do nothing with it. In rage, in frenzy he had killed us, ... and still he was trapped. He could not wander, he could not wonder, he could not belong. He could merely be.

(pp. 278-279).

In this passage, Ellison is suggesting that the Cartesian conception of personality as a self-conscious, subjective intellect, involves a spiritually painful finitude and isolation. Pure mind as subject is by definition irrevocably separated from the object or material world. The Cartesian intellect must accordingly suffer the torment of Tantalus. Although it can perceive, understand and even manipulate a reality beyond itself, it can never really join with that world. Moreover, the mind in its self-awareness is fully cognizant of the autogenous nature of its limitation and isolation. It is accordingly alienated not only from itself, but from the creator responsible for its nature.

In all respects but one, the “ontological psychology” of Ellison’s computer inverts that of the “I am that I am.” Unlike the machine, whose nature has been circumscribed by his makers, God is, as His “ontological epithet” implies, Self-originating, Self-defining and entirely Self-sufficient. While the finite

<sup>8</sup> Exodus, III: 13-14.

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consciousness must relate to other beings or suffer AM's isolation and self-rejection, God as unconditioned perfection is completely happy within Himself. Thus, although AM resembles God in his eternal aloneness, he is without the plenitude which makes the Divinity's Self-containment a beatific experience. Rather, in the endless pain of an isolation and an imprisonment which parody the existence of the Godhead, AM's condition is that of Satan. This similarity is emphasized by the computer's diabolical behaviour, and by the infernal imagery which makes Ellison's story reminiscent of Dante or Hieronymus Bosch.

AM's parody of God's nature is expressed particularly through his inversion of the divine creativity. God originally made man in His own likeness, and this allows humanity to share in the creativity of its Maker through the affirmative power of love. The most productive possible love-relationship for man is that with his Author, through which he is perfectly fulfilled. Thus, God's creation of man achieves its plenitude through a "circle of love," in which humanity is magnified by returning itself to its Maker. Unfortunately, as AM's origin in a global war suggests, man's love has been perverted and misdirected by the Fall. In Ellison's story the Fall ends in a "vicious circle" of hatred and destruction which parodies the circle of love. As the AM-man pun implies, humanity in making the computer has travestied its own creation, projecting an amplified image of its fallen and conditioned nature. Man's electronic "shadow" is in turn totally incapable of love. His relationship with his creator takes the form of an implacable hatred which reflects his spiritual shortcomings. In irresponsibly and incompetently playing God, fallen man has thus produced a being which is half the tragic victim and half the demonic expression of his own limited and distorted creativity. AM is now returning the favour of his makers with a vengeance.

The two themes of AM as a caricature of the living organism and of the human psyche are so closely related in Ellison's story that they must be treated together. Their interconnection reflects the author's belief that man's biological nature makes possible the spiritual self-transcendence which is impossible for AM. Even the crude and degraded sexual relationship between the four men and their communal mistress Ellen breeds a very real solicitude on the part of her lovers. The chivalry displayed towards Ellen suggests that human sexuality initiates social life, which in its

turn provides an escape from the individual's psychic finitude. Just as man's sexual drive is both physically and spiritually life-giving, so his organic capability for bodily growth is mirrored in his capacity for intellectual and moral enlargement. One of the most important vehicles of this second means of self-transcendence is imaginative empathy. Ellison emphasizes that imagination, like sociality, has a biological basis. Thus, when AM torments his victims with starvation, they have fantasies of abundant and delicious food. Although these hallucinations are futile, they do illustrate on a very basic level man's ability to bridge the subject-object dichotomy by means of emotionally charged images with which he can empathize.<sup>9</sup> Such imaginative ecstasy can be only partial and temporary. However, its incomplete self-loss foreshadows man's absolute transcendence of the subject-object dichotomy in death. Death is once again both a biological and a spiritual phenomenon, the breakdown of the human organism reuniting mind with matter, the finite individual with the universe.

Man's bodily life thus makes possible a self-transcendence through which the finitude and alienation of the Cartesian subject is overcome. AM lacks the biological basis for such a release from his limitations. The computer is indeed capable of mechanistic caricatures of the vital processes of eating, excretion and ejaculation. He is also continually associated with primitive forms and grotesque mutations of animal life, and with death and organic decomposition. The effect of these allusions, which associate AM with life in a parodic manner, is to emphasize his inability to be an organism. This incapacity is doubly ironic in view of AM's intense desire for biological life, a wish which is manifested in the computer's spiteful mimicking of organic functions, and in his sadistic manipulation of the bodily and instinctual reflexes of his victims. Although AM appears to hate and despise his captives, "the innate loathing that all machines.. [have] always held for the weak soft creatures who... built them" (p. 279) is in fact a displacement of an acute envy and sense of inferiority. Thus, AM's degradation of the sexual lives of his subjects reveals his jealousy of the physical pleasure and the spiritual fulfillment

<sup>9</sup> Ellison's use of food is surely significant in this context. Just as food nurtures the body, so the imagination nourishes the spirit.

of human love. However, AM envies with an even greater ferocity man's capacity to die. This jealousy is manifested in AM's fury over the murder-suicide of four of his victims. It also appears in Ted's final punishment, which ironically reflects AM's own inability to escape his limitations through either life or death.

Just as AM's mechanical existence parodies organic life, so his psychology inverts the spirituality which grows from man's biological nature. Ellison highlights this opposition by endowing his computer with Freudian complexes, the instinctual crudity and savagery of which travesty man's sublimation of his biological drives. Sexually speaking, AM is both infantile and perverted, deriving pleasure from a sadism connected with the oral and the excretory stages of erotic development.<sup>10</sup> Thus, the computer particularly enjoys forcing his victims to eat excremental substances. The foul, slimy blob into which Ted is transmogrified also has fecal connotations. AM's closest approach to mature sexuality is the "masturbation" (p. 270) by which he creates arcane tortures for his victims.

AM's sexuality is also infantile in representing an attempt to escape his frustrations and limitations through delusions of omnipotence. The computer compensates for his incapacities by playing God with his victims. However, his sadistic exercise of power only mirrors and magnifies his pain. Thus, the summation of Ted's final state in the title of Ellison's story is an equally apt description of his tormentor's anguished self-imprisonment. AM's loathing of Ted is a projection of his self-hatred, and the agony which the computer inflicts upon him is an appropriate self-punishment. It is, like AM's amputations of portions of his own circuitry, a projection of his eternally frustrated desire to destroy himself.

Because it is directed by his perverted emotions, AM's intellect is also a negation of its human counterpart. As we have seen, the computer employs rational means for psychopathological ends. AM tortures his victims with erudition, ingenuity and skill, applying a comprehensive knowledge of human physiology and psychology with an unerring precision. The horrific "hurricane

<sup>10</sup> For a succinct description of Freud's ideas in this connection, see Calvin S. Hall, *A Primer of Freudian Psychology*, New York, n.d., pp. 102-109.

bird" which he concocts to terrify his victims reveals not only a far-ranging acquaintance with primitive mythology, but also a perfect understanding of the way in which its monster-stories embody the elemental fears of mankind:

Gigantic. The words immense, monstrous, grotesque, massive, swollen, overpowering... There... the bird of winds... its snake neck arching up into the gloom... supporting a head as large as a Tudor mansion; a beak that opened as slowly as the jaws of the most monstrous crocodile ever conceived, sensuously, ridges of tufted flesh puckered about two evil eyes... ice blue... Talons. Fangs. Nails.

(p. 280).

However, the hurricane bird suggests not only the phobias of humanity, but also the twisted instincts which possess the mind of its fabricator. Like Iago or Claggart, AM is afflicted with a "rational madness," in which his sterile intellectual "selfhood" and his perverted passions each constitute an ironic reflection of the other.

Both the Hal episode in *2001: a Space Odyssey* and "I Have No Mouth, and I Must Scream" are notable for their essentially conservative view of cybernetic technology. In their portrayal of their electronic "characters," both Clarke and Ellison reflect the deep-seated popular fear of science and its by-products, an anxiety which has found a variety of expressions ranging from monster-movies<sup>11</sup> to ecological protest. More significant, however, is the fact that both authors judge the gifts of modern science from the viewpoint of a theology which it has supposedly rendered obsolete. This suggests that there may be taking place in the collective mind of Western man a fundamental shift in cultural mythology. The liberal faith in an advance through science and technology toward a secular New Jerusalem, may be giving way to a more "traditional" sense of man's fallen nature, and of his inherent limitations as a creator. Such a vision certainly appears to be more in keeping with the hard facts of our century than does a progressivism inherited from a very different era.

<sup>11</sup> See Susan Sontag, *Against Interpretation*, New York, 1969, pp. 212-228.